Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	355	548/304.7.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/13 13:46
L2	1030	514/394.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/13 13:46
L3	79	l1 and furan	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/13 13:49
L4	56	l2 and furan-$	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/13 13:47
L5	14	l3 and l4	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/13 13:47

Ngrazier 10796657AmendGroup1to4

	ENTRY	SESSION
FULL ESTIMATED COST	0.21	0.21

FILE 'REGISTRY' ENTERED AT 09:08:59 ON 13 DEC 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 12 DEC 2005 HIGHEST RN 869770-56-9
DICTIONARY FILE UPDATES: 12 DEC 2005 HIGHEST RN 869770-56-9

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

```
**********************************************************************
*                                                                    *
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added,   *
* effective March 20, 2005.  A new display format, IDERL, is now    *
* available and contains the CA role and document type information. *
*                                                                    *
**********************************************************************
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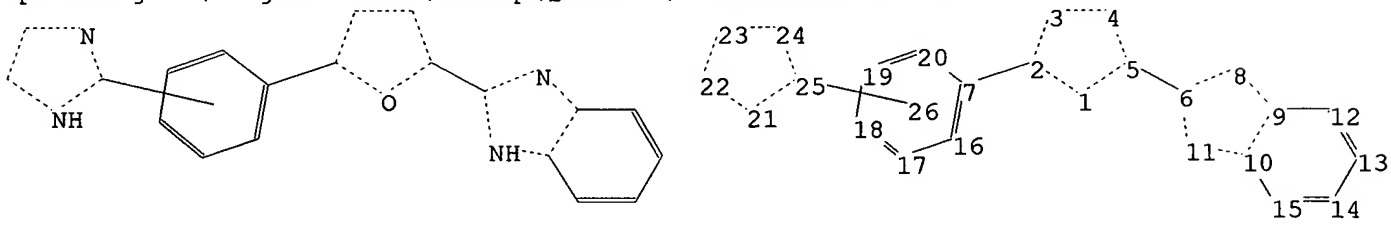
Structure search iteration limits have been increased. See HELP SLIMITS
for details.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
on property searching in REGISTRY, refer to:

http://www.cas.org/ONLINE/UG/regprops.html

=>
Uploading C:\Program Files\Stnexp\Queries\10796657Amend2.str



ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

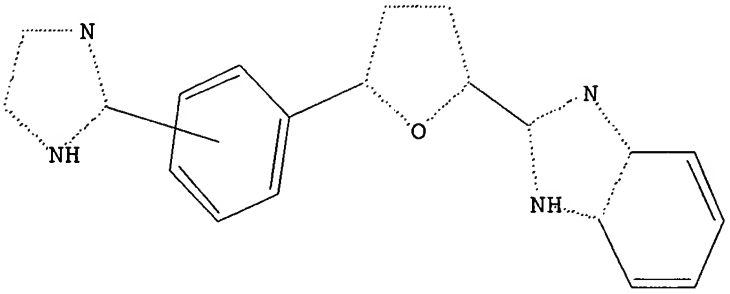
chain bonds :
2-7 5-6
ring bonds :
1-2 1-5 2-3 3-4 4-5 6-8 6-11 7-16 7-20 8-9 9-10 9-12 10-11 10-15 12-13
13-14 14-15 16-17 17-18 18-19 19-20 21-22 21-25 22-23 23-24 24-25

exact/norm bonds :
1-2 1-5 2-3 3-4 4-5 6-8 6-11 8-9 9-10 9-12 10-11 10-15 12-13 13-14 14-15
21-22 21-25 22-23 23-24 24-25
exact bonds :
2-7 5-6
normalized bonds :
7-16 7-20 16-17 17-18 18-19 19-20

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom
12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom 20:Atom 21:Atom
22:Atom 23:Atom 24:Atom 25:Atom 26:CLASS

L1 STRUCTURE UPLOADED

=> d l1
L1 HAS NO ANSWERS
L1 STR



Structure attributes must be viewed using STN Express query preparation.

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SAMPLE SEARCH INITIATED 09:09:35 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 33 TO ITERATE

100.0% PROCESSED 33 ITERATIONS 1 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 316 TO 1004
PROJECTED ANSWERS: 1 TO 80

L2 1 SEA SSS SAM L1

=> s l1 full
FULL SEARCH INITIATED 09:09:39 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 714 TO ITERATE

100.0% PROCESSED 714 ITERATIONS 2 ANSWERS
SEARCH TIME: 00.00.01

L3 2 SEA SSS FUL L1

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=> fil hcaplus
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                   161.33     161.54

FILE 'HCAPLUS' ENTERED AT 09:09:47 ON 13 DEC 2005
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FILE COVERS 1907 - 13 Dec 2005  VOL 143 ISS 25
FILE LAST UPDATED: 12 Dec 2005  (20051212/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

=> s l3
L4            8 L3

=> d ed abs ibib hitstr 1-8
```

Group 11

L4 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN

ED Entered STN: 26 Oct 2004

AB Noncytopathic infections with bovine viral diarrhea virus (BVDV) can compromise research and com. use of cultured cells. The purpose of this research was to evaluate the ability of aromatic cationic compds. to prevent or treat BVDV infections in fetal fibroblast cell lines that are used in somatic cell nuclear transfer. To evaluate preventative use of compds., 10 cell lines were inoculated with BVDV in the absence or presence of 2-(4-[2-imidazolinyl]phenyl)-5-(4-methoxyphenyl)furan (DB606), 2-(2-benzimidazolyl)-5-[4-(2-imidazolino)phenyl]furan dihydrochloride (DB772), or 2-(1-methyl-2-benzimidazolyl)-5-[4'-(2-imidazolino)-2'-methylphenyl]furan dihydrochloride (DB824). The 99% endpoints for prevention of viral replication by these treatments were 81, 6, and 14 nM. To evaluate therapeutic use of compds., 2 fetal fibroblast cell lines infected with a genotype 1a strain of BVDV were cultured through 4 passages in the absence or presence of either 0.04 or 4 μM concns. of DB772 or DB824. The presence and concentration of BVDV in media and cell lysates were evaluated using reverse transcription nested polymerase chain reaction and virus isolation from titrated sample. A single passage in 4 μM of either compound was sufficient to eliminate BVDV from cells without causing cytotoxicity. The authors' results demonstrate that in vitro infections with BVDV can be effectively prevented or eliminated by addition of aromatic cations.

ACCESSION NUMBER: 2004:889210 HCAPLUS

DOCUMENT NUMBER: 142:290630

TITLE: Prevention and elimination of bovine viral diarrhea virus infections in fetal fibroblast cells

AUTHOR(S): Givens, M. Daniel; Stringfellow, David A.; Dykstra, Christine C.; Riddell, Kay P.; Galik, Patricia K.; Sullivan, Eddie; Robl, James; Kasinathan, Poothapillai; Kumar, Arvind; Boykin, David W.

CORPORATE SOURCE: Sugg Laboratory, College of Veterinary Medicine, Auburn University, AL, 36849-5516, USA

SOURCE: Antiviral Research (2004), 64(2), 113-118
CODEN: ARSRDR; ISSN: 0166-3542

PUBLISHER: Elsevier B.V.

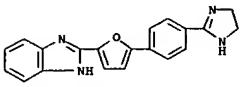
DOCUMENT TYPE: Journal

LANGUAGE: English

IT 433735-90-1, DB 772
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(prevention and elimination of bovine viral diarrhea virus infections in fetal fibroblast cells)

RN 433735-90-1 HCAPLUS

CN 1H-Benzimidazole, 2-[5-[4-(4,5-dihydro-1H-imidazol-2-yl)phenyl]-2-furanyl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)

Cr II

≠ INV. ENT.

Publ. online 9.11.04

L4 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN

ED Entered STN: 06 Jul 2003

AB Bovine viral diarrhea virus (BVDV) is an economically significant pathogen of cattle and a problematic contaminant in the laboratory BVDV is often used as an in vitro model for hepatitis C virus during drug discovery efforts. Aromatic dicationic mols. have exhibited inhibitory activity against several RNA viruses. Thus, the purpose of this research was to develop and apply a method for screening the aromatic cationic compds. for in vitro cytotoxicity and activity against a noncytopathic strain of BVDV. The screening method evaluated the concentration of BVDV in medium and cell lysates after 72 h of cell culture in the presence of either a 25 or 5 μM concentration of the test compound Five of 93 screened compds. were selected for further determination of inhibitory (90 and 50%) and cytotoxic (50 and 10%) concentration endpoints. The screening method identified compds. that exhibited inhibition of BVDV at nanomolar concns. while exhibiting no cytotoxicity at 25 μM concns. The leading compds. require further investigation to determine their mechanism of action, in vivo activity, and specific activity against hepatitis C virus.

ACCESSION NUMBER: 2003:513253 HCAPLUS

DOCUMENT NUMBER: 139:390750

TITLE: Detection of inhibition of bovine viral diarrhea virus by aromatic cationic molecules

AUTHOR(S): Givens, M. Daniel; Dykstra, Christine C.; Brock, Kenny V.; Stringfellow, David A.; Kumar, Arvind; Stephens, Chad E.; Goker, Hakan; Boykin, David W.

CORPORATE SOURCE: Department of Pathobiology, College of Veterinary Medicine, Auburn University, Auburn, AL, 36849, USA

SOURCE: Antimicrobial Agents and Chemotherapy (2003), 47(7), 2223-2230
CODEN: AMACCQ; ISSN: 0066-4804

PUBLISHER: American Society for Microbiology

DOCUMENT TYPE: Journal

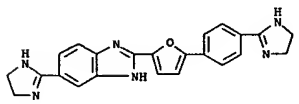
LANGUAGE: English

OTHER SOURCE(S): CASREACT 139:390750

IT 216308-23-5 433735-90-1
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(inhibition of bovine viral diarrhea virus by aromatic cationic mols.)

RN 216308-23-5 HCAPLUS

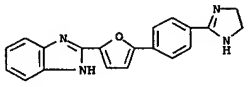
CN 1H-Benzimidazole, 5-(4,5-dihydro-1H-imidazol-2-yl)-2-[5-[4-(4,5-dihydro-1H-imidazol-2-yl)phenyl]-2-furanyl]- (9CI) (CA INDEX NAME)



RN 433735-90-1 HCAPLUS

CN 1H-Benzimidazole, 2-[5-[4-(4,5-dihydro-1H-imidazol-2-yl)phenyl]-2-furanyl]- (9CI) (CA INDEX NAME)

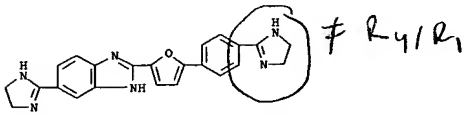
L4 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)



REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

≠ Inv. Ent.

L4 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 01 Apr 2003
AB In this paper, the endpoint is the application of mol. topol. to the search of QSAR relations into a group of dication-substituted carbazoles, furans and benzimidazoles, all showing antifungal activity against C. albicans. Math. and statistical methods such as linear regression and discriminant anal., are used. The results clearly show a high efficiency of the formalism on the prediction and classification of antifungal activity. Some 83% of the compds. showing MIC <10 μg/mL (active group) are correctly classified, while 100% overall accuracy is achieved for those compds. showing MIC >100 μg/mL (inactive group).
ACCESSION NUMBER: 2003:250479 HCAPLUS
DOCUMENT NUMBER: 140:38649
TITLE: Application of molecular topology to the prediction of antifungal activity for a set of dication-substituted carbazoles, furans and benzimidazoles
AUTHOR(S): Garcia-Domenech, R.; Rios-Santamarina, I.; Catala, A.; Calabuig, C.; del Castillo, L.; Galvez, J.
CORPORATE SOURCE: Facultat de Farmacia, Unidad de Investigacion de Conectividad Molecular y Diseno de Farmacos, Departamento de Quimica Fisica, Universitat de Valencia, Valencia, Spain
SOURCE: THEOCHEM (2003), 624, 97-107
CODEN: THEODJ; ISSN: 0166-1280
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
IT **216308-23-5**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(mol. topol. in relation to antifungal activity for a set of dication-substituted carbazoles, furans, and benzimidazoles)
RN 216308-23-5 HCAPLUS
CN 1H-Benzimidazole, 5-(4,5-dihydro-1H-imidazol-2-yl)-2-[5-[4-(4,5-dihydro-1H-imidazol-2-yl)phenyl]-2-furanyl]- (9CI) (CA INDEX NAME)



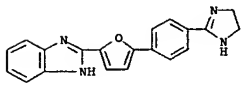
REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 19 Jul 2002
AB The invention relates to novel compds. and methods that are useful in treating members of the Flaviviridae family of viruses. Compds. disclosed in the invention are shown to be effective against bovine viral diarrhea virus and hepatitis C virus infection.
ACCESSION NUMBER: 2002:539483 HCAPLUS
DOCUMENT NUMBER: 137:103864
TITLE: Compounds useful for the treatment of bovine viral diarrhea virus and hepatitis C virus infections
INVENTOR(S): Boykin, David; Tidwell, Richard R.; Stringfellow, David; Brock, Kenny; Stephens, Chad E.; Kumar, Arvind; Wilson, W. David; Givens, Daniel; Dykstra, Christine
PATENT ASSIGNEE(S): University of North Carolina At Chapel Hill, USA; Georgia State University Research Foundation; Auburn University
SOURCE: PCT Int. Appl., 68 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

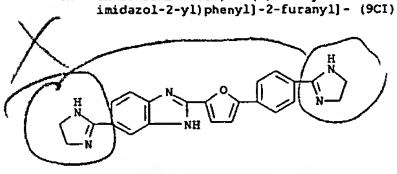
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002055025	A2	20020718	WO 2002-US787	20020111
WO 2002055025	A3	20040115		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2433070	AA	20020718	CA 2002-2433070	20020111
US 2003199521	A1	20031023	US 2002-44315	20020111
EP 1399163	A2	20040324	EP 2002-705743	20020111
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2004525881	T2	20040826	JP 2002-555762	20020111
PRIORITY APPLN. INFO.:			US 2001-261654P P	20010113
			WO 2002-US787 W	20020111

OTHER SOURCE(S): MARPAT 137:103864
IT **433735-90-1**
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(compds. for treatment of bovine viral diarrhea virus infection and hepatitis C virus infection)
RN 433735-90-1 HCAPLUS
CN 1H-Benzimidazole, 2-[5-[4-(4,5-dihydro-1H-imidazol-2-yl)phenyl]-2-furanyl]- (9CI) (CA INDEX NAME)

L4 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)

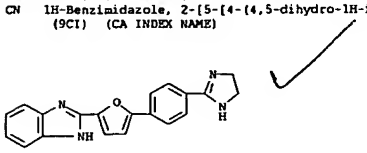


L4 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 05 Apr 2002
AB Fluorescence microscopy has been used to study the cellular distribution properties of a series of DNA binding cationic compds. related to the potent antiparasitic drug furamidine (DB75). The compds. tested bear a diphenylfuran or a phenylfuranbenzimidazole unfused aromatic core substituted with one or two amidine or imidazoline groups. The synthesis of five new compds. is reported. The B16 melanoma cell line was used to compare the capacities of mono-, bis-, and tetracations to enter the cell and nuclei. The high-resolution fluorescence pictures show that in the furamidine series, the compds. with two or four pos. charges selectively accumulate in the cell nuclei whereas, in most cases, those bearing only one pos. charge show reduced cell uptake capacities. One of the monocationic compds., DB607, distributes in the cytoplasm, possibly in mitochondria, with no distinct nuclear accumulation. In sharp contrast, furamidine and benzimidazole analogs, including the drug DB293 that forms DNA minor groove dimers, efficiently accumulate in the cell nuclei and the intranuclear distribution of these DNA minor groove binders is significantly different from that seen with the DNA intercalating drug propidium iodide. The results suggest that the presence of two amidine terminal groups plays a role in facilitating nuclear accumulation into cells, probably as a result of nucleic acid binding. The determination of DNA melting temperature increases on addition of these compds. supports the importance of DNA binding in nuclear uptake.
ACCESSION NUMBER: 2002:252822 HCAPLUS
DOCUMENT NUMBER: 137:197
TITLE: Distribution of Furamidine Analogues in Tumor Cells: Influence of the Number of Positive Charges
AUTHOR(S): Lansiaux, Amelie; Dassonneville, Laurent; Facompre, Michael; Kumar, Arvind; Stephens, Chad E.; Bajic, Miroslav; Tanious, Farial; Wilson, W. David; Boykin, David W.; Bailly, Christian
CORPORATE SOURCE: INSERM U-524 et Laboratoire de Pharmacologie Antitumorale du Centre Oscar Lambret, IRCL, Lille, 59045, Fr.
SOURCE: Journal of Medicinal Chemistry (2002), 45(10), 1994-2002
CODEN: JMCMAR; ISSN: 0022-2623
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 137:197
IT **216308-23-5**, DB 302
RL: PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(DB 302; synthesis and structure activity relationship of furamidine analogs in tumor cells and influence of number of pos. charges)
RN 216308-23-5 HCAPLUS
CN 1H-Benzimidazole, 5-(4,5-dihydro-1H-imidazol-2-yl)-2-[5-[4-(4,5-dihydro-1H-imidazol-2-yl)phenyl]-2-furanyl]- (9CI) (CA INDEX NAME)



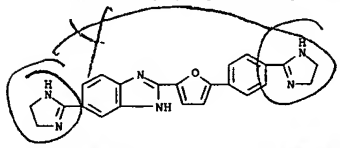
IT **433735-90-1P**, DB 772
RL: PAC (Pharmacological activity); PRP (Properties); SPN (Synthetic

L4 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)
preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(synthesis and structure activity relationship of furamidine analogs in tumor cells and influence of no. of pos. charges)
RN 433735-90-1 HCAPLUS
CN 1H-Benzimidazole, 2-[5-[4-(4,5-dihydro-1H-imidazol-2-yl)phenyl]-2-furanyl]- (9CI) (CA INDEX NAME)



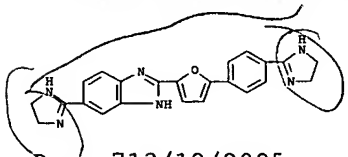
REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 24 May 2001
AB RNA viruses cause a wide range of human diseases. Development of new agents to target such viruses is an active area of research. Toward this goal, a series of diphenylfuran cations as potential inhibitors of the Rev-RRE complex have been designed and synthesized. Anal. of the interaction of the diphenylfurans with RRE and TAR RNA model systems by gel shift assays indicates that they exhibit both sequence and structure-dependent binding modes. Our results show a strong interaction between the diphenylfuran ring system and RRE bases, while the TAR interactions are much weaker with the compds. that are the best inhibitors of Rev-RRE. A diphenylfuran lead compound was systematically varied and the ability of the new compds. to inhibit the formation of Rev-RRE and Tat-TAR complexes was assayed by gel-mobility shift expts. In this series, DB340 was found to be the most active compound and also the most specific compound for inhibition of Rev-RRE complex formation.
ACCESSION NUMBER: 2001:373395 HCAPLUS
DOCUMENT NUMBER: 135:251448
TITLE: Inhibition of the HIV-1 Rev-RRE complex formation by unfused aromatic cations
AUTHOR(S): Xiao, G.; Kumar, A.; Li, K.; Rigl, C. T.; Bajic, M.; Davis, T. M.; Boykin, D. W.; Wilson, W. D.
CORPORATE SOURCE: Department of Chemistry, Georgia State University, Atlanta, GA, 30303, USA
SOURCE: Bioorganic & Medicinal Chemistry (2001), 9(5), 1097-1113
CODEN: BMECEP; ISSN: 0968-0896
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
IT 216308-23-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of and inhibition of the HIV-1 Rev-RRE complex formation by unfused aromatic cations)
RN 216308-23-5 HCAPLUS
CN 1H-Benzimidazole, 5-(4,5-dihydro-1H-imidazol-2-yl)-2-[5-[4-(4,5-dihydro-1H-imidazol-2-yl)phenyl]-2-furanyl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

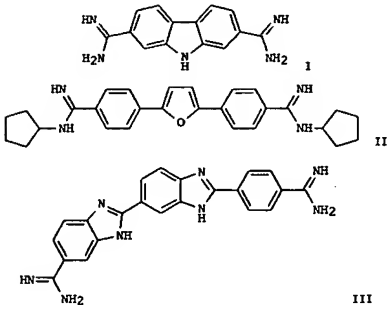
L4 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 05 Feb 2001
AB The Human Genome Project as well as sequencing of the genomes of other organisms offers a wealth of DNA targets for both therapeutic and diagnostic applications, and it is important to develop addnl. DNA binding motifs to fully exploit the potential of this new information. We have recently found that an aromatic dication, DB293, with an amidine-phenyl-furan-benzimidazole-amidine structure can recognize specific sequences of DNA by binding in the minor groove as a dimer. The dimer binding is strong, highly cooperative and, in contrast to many closely related heterocyclic dications, has both GC and AT base pairs in the minor groove binding site. The aromatic heterocycle stacked dimer is quite different in structure from the polyamide-lexitropsin type compds., and it is a dication while all lexitropsin dimers are monocations. The heterocyclic dimer represents only the second small mol. class that can recognize mixed sequences of DNA. To test the structural limits on the new type of complex, it is important to probe the influence of compound charge, chemical groups, and structural features. The effects of these compound mol. variations on DNA complex formation with several DNA sequences were evaluated by DNase I footprinting, CD and UV spectroscopy, thermal melting, and quant. anal. with surface plasmon resonance biosensor methods. Conversion of the amidines to guanidinium groups does permit the cooperative dimer to form but removal of one amidine or addition of an alkyl group to the amidine strongly inhibited dimer formation. Changing the Ph of DB293 to a benzimidazole or the benzimidazole to a Ph or benzofuran also inhibited dimer formation. The results show that formation of the minor groove stacked-dimer complex is very sensitive to compound structure. The discovery of the aromatic dimer mode offers new opportunities to enhance the specificity and expand the range of applications of the compds. that target DNA.
ACCESSION NUMBER: 2001:79423 HCAPLUS
DOCUMENT NUMBER: 134:277012
TITLE: Evaluation of the Influence of Compound Structure on Stacked-Dimer Formation in the DNA Minor Groove
AUTHOR(S): Wang, Lei; Carrasco, Carolina; Kumar, Arvind; Stephens, Chad E.; Bailly, Christian; Boykin, David W.; Wilson, W. David
CORPORATE SOURCE: Department of Chemistry, Georgia State University, Atlanta, GA, 30303, USA
SOURCE: Biochemistry (2001), 40(8), 2511-2521
CODEN: BICHAW; ISSN: 0006-2960
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 134:277012
IT 216308-23-5, DB 302
RL: BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process)
(preparation and evaluation of the influence of heterocyclic dication compound structure on stacked-dimer formation in the DNA minor groove)
RN 216308-23-5 HCAPLUS
CN 1H-Benzimidazole, 5-(4,5-dihydro-1H-imidazol-2-yl)-2-[5-[4-(4,5-dihydro-1H-imidazol-2-yl)phenyl]-2-furanyl]- (9CI) (CA INDEX NAME)



L4 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 21 Oct 1998
GI



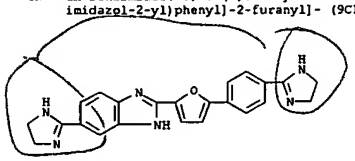
I

II

III

AB Aromatic dicationic compds. possess antimicrobial activity against a wide range of eucaryotic pathogens, and in the present study an examination of the structures-functions of a series of compds. against fungi was performed. Sixty-seven dicationic mols. were screened for their inhibitory and fungicidal activities against Candida albicans and Cryptococcus neoformans. The MICs of a large number of compds. were comparable to those of the standard antifungal drugs amphotericin B and fluconazole. Unlike fluconazole, potent inhibitory compds. in this series were found to have excellent fungicidal activities. Broad-spectrum activities were observed for the carbazole I, the furan II, and the benzimidazole III. The MIC of III, one of the most potent compds., against C. albicans was 0.39 μg/mL, and it was the most potent compound against C. neoformans (MIC, ≤0.09 μg/mL). Selected compds. were also found to be active against Aspergillus fumigatus, Fusarium solani, Candida species other than C. albicans, and fluconazole-resistant strains of C. albicans and C. neoformans. Since of these compds. have been safely given to animals, these classes of mols. have the potential to be developed as antifungal agents.

ACCESSION NUMBER: 1998:664986 HCAPLUS
DOCUMENT NUMBER: 130:22621
TITLE: In vitro antifungal activities of a series of dication-substituted carbazoles, furans, and benzimidazoles
AUTHOR(S): Del Poeta, Maurizio; Schell, Wiley A.; Dykstra, Christine C.; Jones, Susan K.; Tidwell, Richard R.; Kumar, Arvind; Boykin, David W.; Perfect, John R.
CORPORATE SOURCE: Department of Medicine, Division of Infectious Diseases and International Health, Duke University Medical Center, Durham, NC, 27710, USA
SOURCE: Antimicrobial Agents and Chemotherapy (1998), 42(10), 2503-2510
CODEN: AMACCQ; ISSN: 0066-4804
PUBLISHER: American Society for Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English
IT 216308-23-5
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(in vitro antifungal activities of a series of dication-substituted carbazoles, furans, and benzimidazoles)
RN 216308-23-5 HCAPLUS
CN 1H-Benzimidazole, 5-(4,5-dihydro-1H-imidazol-2-yl)-2-[5-[4-(4,5-dihydro-1H-imidazol-2-yl)phenyl]-2-furanyl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

Ngrazier 10796657AmendGroup1to4

=> fil reg
COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION
FULL ESTIMATED COST | 41.97 | 203.51

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION
CA SUBSCRIBER PRICE | -5.84 | -5.84

FILE 'REGISTRY' ENTERED AT 09:10:35 ON 13 DEC 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 12 DEC 2005 HIGHEST RN 869770-56-9
DICTIONARY FILE UPDATES: 12 DEC 2005 HIGHEST RN 869770-56-9

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

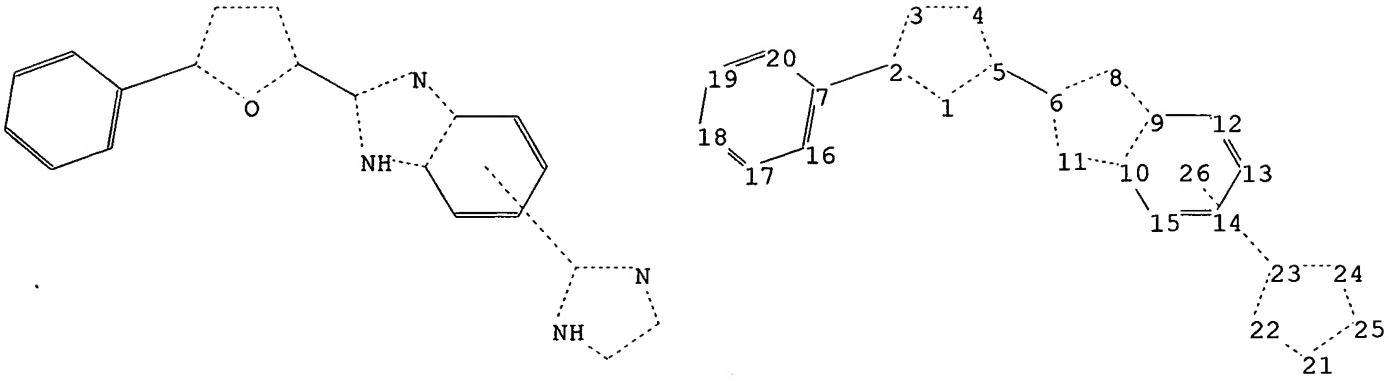
****
* *
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
* *
****

Structure search iteration limits have been increased. See HELP SLIMITS
for details.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
on property searching in REGISTRY, refer to:

http://www.cas.org/ONLINE/UG/regprops.html

=>
Uploading C:\Program Files\Stnexp\Queries\10796657AmendGI.str



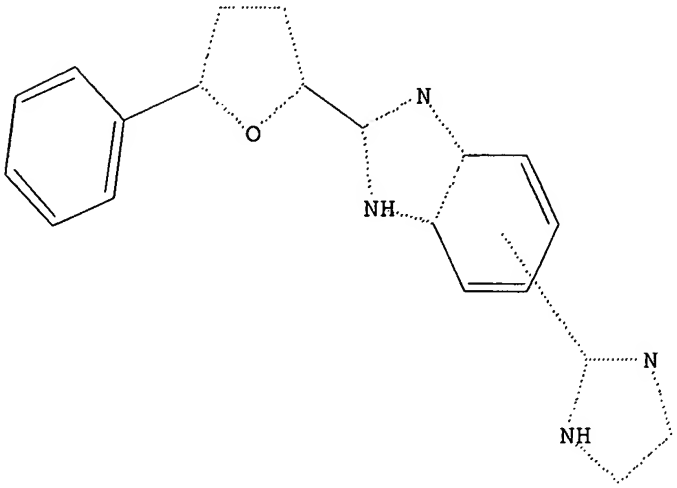
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

chain bonds :
2-7 5-6
ring bonds :
1-2 1-5 2-3 3-4 4-5 6-8 6-11 7-16 7-20 8-9 9-10 9-12 10-11 10-15 12-13
13-14 14-15 16-17 17-18 18-19 19-20 21-22 21-25 22-23 23-24 24-25
exact/norm bonds :
1-2 1-5 2-3 3-4 4-5 6-8 6-11 8-9 9-10 9-12 10-11 10-15 12-13 13-14 14-15
21-22 21-25 22-23 23-24 24-25
exact bonds :
2-7 5-6
normalized bonds :
7-16 7-20 16-17 17-18 18-19 19-20

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom
12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom 20:Atom 21:Atom
22:Atom 23:Atom 24:Atom 25:Atom 26:CLASS

L5 STRUCTURE UPLOADED

=> d l5
L5 HAS NO ANSWERS
L5 STR



Structure attributes must be viewed using STN Express query preparation.

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=> s l5
SAMPLE SEARCH INITIATED 09:13:53 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED -       33 TO ITERATE

100.0% PROCESSED       33 ITERATIONS                                0 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:  ONLINE  **COMPLETE**
                        BATCH   **COMPLETE**
PROJECTED ITERATIONS:          316 TO     1004
PROJECTED ANSWERS:               0 TO        0

L6             0 SEA SSS SAM L5

=> s l5 full
FULL SEARCH INITIATED 09:13:58 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -      714 TO ITERATE

100.0% PROCESSED      714 ITERATIONS                                5 ANSWERS
SEARCH TIME: 00.00.01

L7             5 SEA SSS FUL L5

=>
Uploading C:\Program Files\Stnexp\Queries\10796657GIII.str
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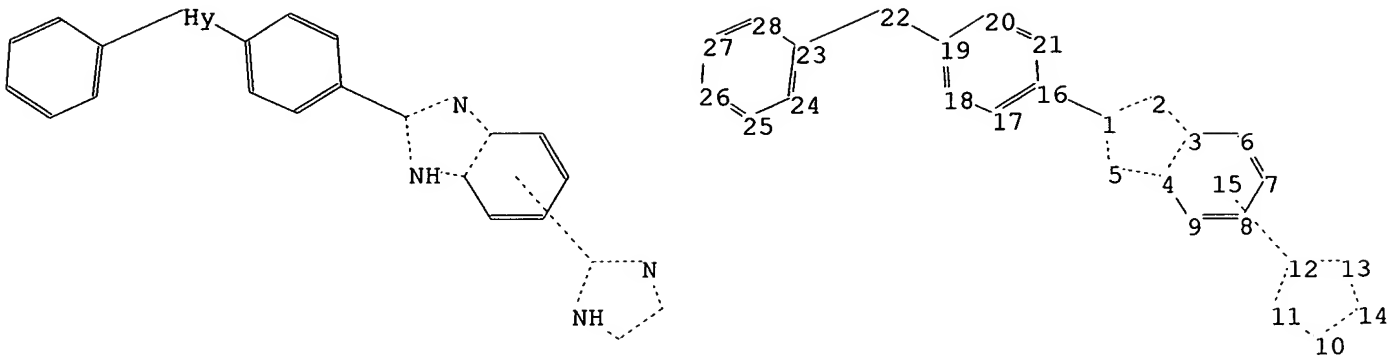

chain nodes :
22
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14 16 17 18 19 20 21 23 24 25 26 27 28
chain bonds :
1-16 19-22 22-23
ring bonds :
1-5 1-2 2-3 3-4 3-6 4-5 4-9 6-7 7-8 8-9 10-11 10-14 11-12 12-13 13-14 16-17 16-21 17-18 18-19 19-20 20-21 23-24 23-28 24-25 25-26 26-27 27-28
exact/norm bonds :
1-5 1-2 2-3 3-4 3-6 4-5 4-9 6-7 7-8 8-9 10-11 10-14 11-12 12-13 13-14 19-22 22-23
exact bonds :
1-16
normalized bonds :
16-17 16-21 17-18 18-19 19-20 20-21 23-24 23-28 24-25 25-26 26-27 27-28

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom 12:Atom 13:Atom 14:Atom 15:CLASS 16:Atom 17:Atom 18:Atom 19:Atom 20:Atom 21:Atom 22:Atom 23:Atom 24:Atom 25:Atom 26:Atom 27:Atom 28:Atom
Generic attributes :
22:
Saturation : Unsaturated
Number of Carbon Atoms : less than 7
Number of Hetero Atoms : less than 2
Type of Ring System : Monocyclic

Element Count :
Node 22: Limited
O,O1
C,C4

L8 STRUCTURE UPLOADED

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=> d l8
L8 HAS NO ANSWERS
L8                STR
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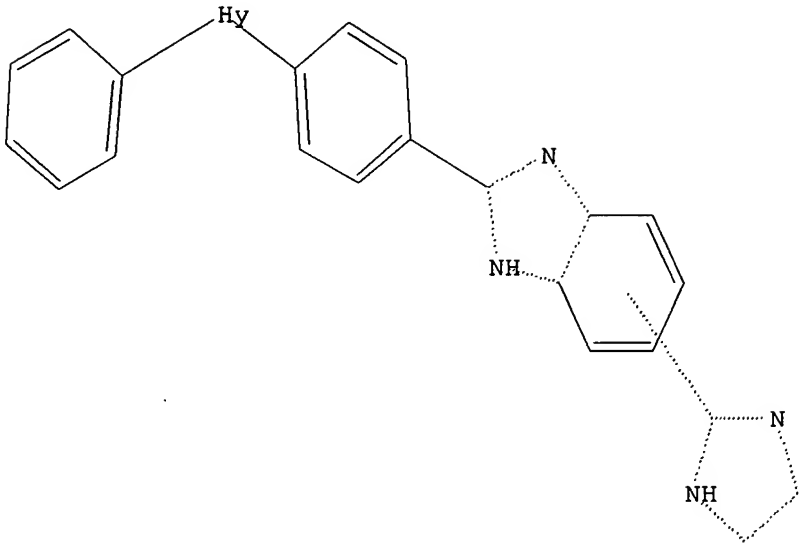


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Structure attributes must be viewed using STN Express query preparation.


=> s l8
SAMPLE SEARCH INITIATED 09:17:38 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED -      908 TO ITERATE

100.0% PROCESSED      908 ITERATIONS                                  0 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:  ONLINE  **COMPLETE**
                        BATCH   **COMPLETE**
PROJECTED ITERATIONS:        16353 TO    19967
PROJECTED ANSWERS:               0 TO        0

L9            0 SEA SSS SAM L8

=> s l8 full
FULL SEARCH INITIATED 09:17:43 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -    18231 TO ITERATE

100.0% PROCESSED    18231 ITERATIONS                                  1 ANSWERS
SEARCH TIME: 00.00.01

L10           1 SEA SSS FUL L8

=>
Uploading C:\Program Files\Stnexp\Queries\10796657GIV.str
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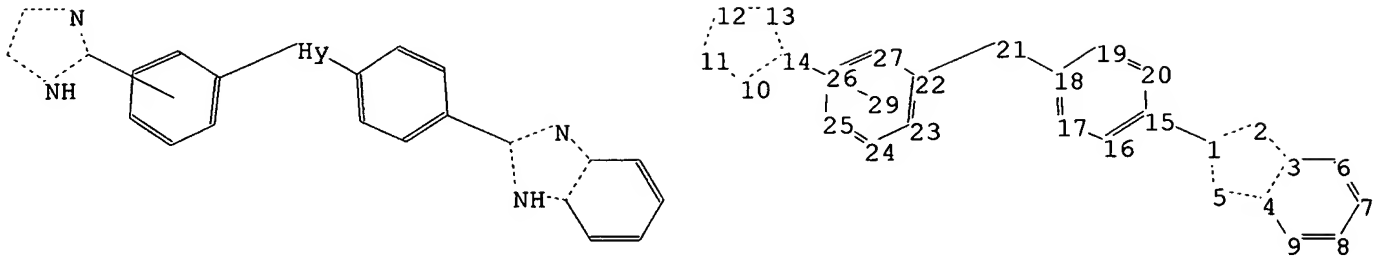


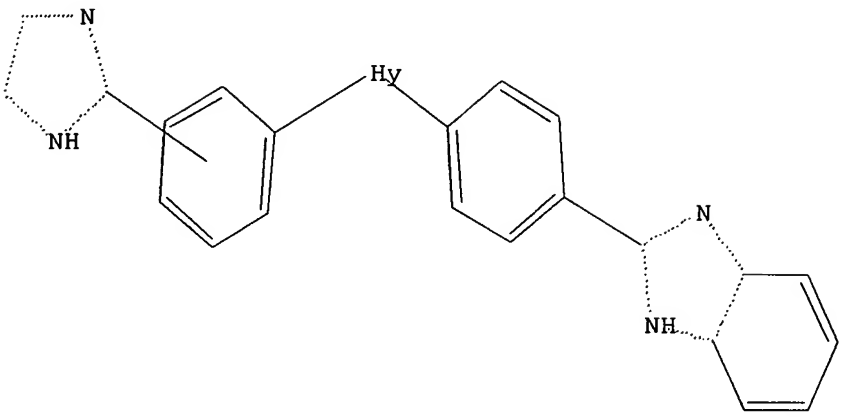
chain nodes :
21
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 22 23 24 25 26
27
chain bonds :
1-15 18-21 21-22
ring bonds :
1-5 1-2 2-3 3-4 3-6 4-5 4-9 6-7 7-8 8-9 10-11 10-14 11-12 12-13 13-14
15-16 15-20 16-17 17-18 18-19 19-20 22-23 22-27 23-24 24-25 25-26 26-27
exact/norm bonds :
1-5 1-2 2-3 3-4 3-6 4-5 4-9 6-7 7-8 8-9 10-11 10-14 11-12 12-13 13-14
18-21 21-22
exact bonds :
1-15
normalized bonds :
15-16 15-20 16-17 17-18 18-19 19-20 22-23 22-27 23-24 24-25 25-26 26-27

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom
12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom 20:Atom 21:Atom
22:Atom 23:Atom 24:Atom 25:Atom 26:Atom 27:Atom 29:CLASS
Generic attributes :
21:
Saturation : Unsaturated
Number of Carbon Atoms : less than 7
Number of Hetero Atoms : less than 2
Type of Ring System : Monocyclic

Element Count :
Node 21: Limited
O,O1
C,C4

L11 STRUCTURE UPLOADED

=> d l11
L11 HAS NO ANSWERS
L11 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l11
SAMPLE SEARCH INITIATED 09:19:40 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 908 TO ITERATE

100.0% PROCESSED 908 ITERATIONS 2 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 16353 TO 19967
PROJECTED ANSWERS: 2 TO 124

L12 2 SEA SSS SAM L11

=> s l11 full
FULL SEARCH INITIATED 09:19:45 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 18231 TO ITERATE

100.0% PROCESSED 18231 ITERATIONS 11 ANSWERS
SEARCH TIME: 00.00.01

L13 11 SEA SSS FUL L11

=> fil hcaplus

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	489.58	693.09

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	0.00	-5.84

FILE 'HCAPLUS' ENTERED AT 09:19:55 ON 13 DEC 2005

FILE COVERS 1907 - 13 Dec 2005 VOL 143 ISS 25
FILE LAST UPDATED: 12 Dec 2005 (20051212/ED)

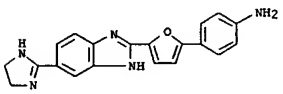
New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l7
L14 8 L7

=> d ed abs ibib hitstr 1-8

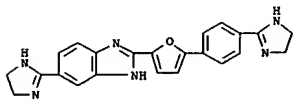
L14 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 15 Apr 2005
AB Bovine viral diarrhea virus (BVDV) has been shown to replicate in embryo culture systems and remain associated with bovine embryos developing in vitro. In this study, novel antiviral agents were evaluated for capability to inhibit replication of BVDV without affecting embryonic development. Serial concns. of 2-[5(6)-(2-imidazolinyl]-2-benzimidazolyl]-5-(4-aminophenyl)furan (DB456) or 2-(4-[2-imidazolinyl]phenyl)-5-(4-methoxyphenyl)furan (DB606) were prepared in IVC medium. Then, bovine uterine tubal epithelial cells (UTC) were placed in IVC media with varying concns. of DB456 or DB606. Within 1 h, a genotype I or II strain of BVDV was added to the cultures. Cultures were maintained for 7 days. Infectious virus was quantitated in IVC media collected on days 3 and 7 and in UTC lysates harvested on day 7. The effective antiviral concns. of DB606 were much lower than effective antiviral concns. of DB456. In subsequent expts., IVF presumptive zygotes were cultured in IVC medium with or without DB456 or DB606 at multiple concns. for 7 days to evaluate effect of the compound on conceptus development. On day 7, stage of embryonic development was observed, and blastocysts were harvested and stained using Hoechst 33342 to enumerate embryonic cells. While DB456 inhibited blastocyst development, DB606 at 20 times the effective antiviral concentration did not hinder blastocyst development or reduce the mean number of cells per blastocyst. These preliminary results indicated that bovine embryo cultures might be safely supplemented with effective concns. of an antiviral agent.
ACCESSION NUMBER: 2005:326074 HCAPLUS
DOCUMENT NUMBER: 143:146517
TITLE: Effects of aromatic cationic molecules on bovine viral diarrhea virus and embryonic development
AUTHOR(S): Givens, M. D.; Galik, P. K.; Riddell, K. P.; Dykstra, C. C.; Brock, K. V.; Stringfellow, D. A.
CORPORATE SOURCE: Department of Pathobiology, Clinical Sciences, College of Veterinary Medicine, Auburn University, Auburn, AL, 36849-5516, USA
SOURCE: Theriogenology (2005), 63(7), 1984-1994
CODEN: THGNBO; ISSN: 0093-691X
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
IT **442842-40-2**
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(aromatic cationic mol. DB606 compared to DB456 showed antiviral activity against BVDV with much lower effective concentration in UTC and did not hindered blastocyst development or reduced number of cells per blastocyst in bovine embryo)
RN 442842-40-2 HCAPLUS
CN Benzenamine, 4-[5-[5-(4,5-dihydro-1H-imidazol-2-yl)-1H-benzimidazol-2-yl]-2-furanyl]- (9CI) (CA INDEX NAME)



L14 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)
REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

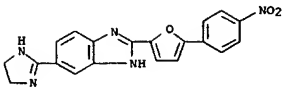
G.I

L14 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 06 Jul 2003
AB Bovine viral diarrhea virus (BVDV) is an economically significant pathogen of cattle and a problematic contaminant in the laboratory. BVDV is often used as an in vitro model for hepatitis C virus during drug discovery efforts. Aromatic dicationic mols. have exhibited inhibitory activity against several RNA viruses. Thus, the purpose of this research was to develop and apply a method for screening the aromatic cationic compds. for in vitro cytotoxicity and activity against a noncytopathic strain of BVDV. The screening method evaluated the concentration of BVDV in medium and cell lysates after 72 h of cell culture in the presence of either a 25 or 5 μM concentration of the test compound. Five of 93 screened compds. were selected for further determination of inhibitory (90 and 50%) and cytotoxic (50 and 10%) concentration endpoints. The screening method identified compds. that exhibited inhibition of BVDV at nanomolar concns. while exhibiting no cytotoxicity at 25 μM concns. The leading compds. require further investigation to determine their mechanism of action, in vivo activity, and specific activity against hepatitis C virus.
ACCESSION NUMBER: 2003:513253 HCAPLUS
DOCUMENT NUMBER: 139:390750
TITLE: Detection of inhibition of bovine viral diarrhea virus by aromatic cationic molecules
AUTHOR(S): Givens, M. Daniel; Dykstra, Christine C.; Brock, Kenny V.; Stringfellow, David A.; Kumar, Arvind; Stephens, Chad E.; Goker, Hakan; Boykin, David W.
CORPORATE SOURCE: Department of Pathobiology, College of Veterinary Medicine, Auburn University, Auburn, AL, 36849, USA
SOURCE: Antimicrobial Agents and Chemotherapy (2003), 47(7), 2223-2230
CODEN: AMACCQ; ISSN: 0066-4804
PUBLISHER: American Society for Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 139:390750
IT **216308-23-5** **442842-41-3**
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(inhibition of bovine viral diarrhea virus by aromatic cationic mols.)
RN 216308-23-5 HCAPLUS
CN 1H-Benzimidazole, 5-(4,5-dihydro-1H-imidazol-2-yl)-2-[5-[4-(4,5-dihydro-1H-imidazol-2-yl)phenyl]-2-furanyl]- (9CI) (CA INDEX NAME)

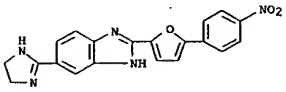


RN 442842-41-3 HCAPLUS
CN 1H-Benzimidazole, 5-(4,5-dihydro-1H-imidazol-2-yl)-2-[5-(4-nitrophenyl)-2-furanyl]- (9CI) (CA INDEX NAME)

L14 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)

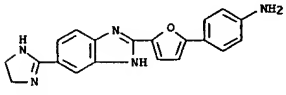


IT **442842-52-6**
RL: RCT (Reactant); RACT (Reactant or reagent)
(inhibition of bovine viral diarrhea virus by aromatic cationic mols.)
RN 442842-52-6 HCAPLUS
CN 1H-Benzimidazole, 5-(4,5-dihydro-1H-imidazol-2-yl)-2-[5-(4-nitrophenyl)-2-furanyl]-, dihydrochloride (9CI) (CA INDEX NAME)



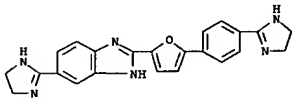
●2 HCl

IT **442842-40-2**
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of aromatic cationic mols. as inhibitors of bovine viral diarrhea virus)
RN 442842-40-2 HCAPLUS
CN Benzenamine, 4-[5-[5-(4,5-dihydro-1H-imidazol-2-yl)-1H-benzimidazol-2-yl]-2-furanyl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 01 Apr 2003
AB In this paper, the endpoint is the application of mol. topol. to the search of QSAR relations into a group of dication-substituted carbazoles, furans and benzimidazoles, all showing antifungal activity against C. albicans. Math. and statistical methods such as linear regression and discriminant anal., are used. The results clearly show a high efficiency of the formalism on the prediction and classification of antifungal activity. Some 83% of the compds. showing MIC <10 μg/mL (active group) are correctly classified, while 100% overall accuracy is achieved for those compds. showing MIC >100 μg/mL (inactive group).
ACCESSION NUMBER: 2003:250479 HCAPLUS
DOCUMENT NUMBER: 140:38649
TITLE: Application of molecular topology to the prediction of antifungal activity for a set of dication-substituted carbazoles, furans and benzimidazoles
AUTHOR(S): Garcia-Domenech, R.; Rios-Santamarina, I.; Catala, A.; Calabuig, C.; del Castillo, L.; Galvez, J.
CORPORATE SOURCE: Facultat de Farmacia, Unidad de Investigacion de Conectividad Molecular y Diseno de Farmacos, Departamento de Quimica Fisica, Universitat de Valencia, Valencia, Spain
SOURCE: THEOCHEM (2003), 624, 97-107
CODEN: THEODJ; ISSN: 0166-1280
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
IT 216308-23-5
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(mol. topol. in relation to antifungal activity for a set of dication-substituted carbazoles, furans, and benzimidazoles)
RN 216308-23-5 HCAPLUS
CN 1H-Benzimidazole, 5-(4,5-dihydro-1H-imidazol-2-yl)-2-[5-[4-(4,5-dihydro-1H-imidazol-2-yl)phenyl]-2-furanyl]- (9CI) (CA INDEX NAME)



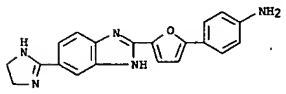
REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 19 Jul 2002
AB The invention relates to novel compds. and methods that are useful in treating members of the Flaviviridae family of viruses. Compds. disclosed in the invention are shown to be effective against bovine viral diarrhea virus and hepatitis C virus infection.
ACCESSION NUMBER: 2002:539483 HCAPLUS
DOCUMENT NUMBER: 137:103864
TITLE: Compounds useful for the treatment of bovine viral diarrhea virus and hepatitis C virus infections
INVENTOR(S): Boykin, David; Tidwell, Richard R.; Stringfellow, David; Brock, Kenny; Stephens, Chad E.; Kumar, Arvind; Wilson, W. David; Givens, Daniel; Dykstra, Christine
PATENT ASSIGNEE(S): University of North Carolina At Chapel Hill, USA; Georgia State University Research Foundation; Auburn University
SOURCE: PCT Int. Appl., 68 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

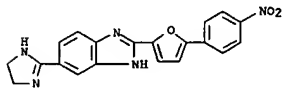
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002055025	A2	20020718	WO 2002-US787	20020111
WO 2002055025	A3	20040115		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2433070	AA	20020718	CA 2002-2433070	20020111
US 2003199521	A1	20031023	US 2002-44315	20020111
EP 1399163	A2	20040324	EP 2002-705743	20020111
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2004525881	T2	20040826	JP 2002-555762	20020111
PRIORITY APPLN. INFO.:			US 2001-261654P P	20010113
			WO 2002-US787 W	20020111

OTHER SOURCE(S): MARPAT 137:103864
IT 442842-40-2 442842-41-3
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(compds. for treatment of bovine viral diarrhea virus infection and hepatitis C virus infection)
RN 442842-40-2 HCAPLUS
CN Benzenamine, 4-[5-[5-(4,5-dihydro-1H-imidazol-2-yl)-1H-benzimidazol-2-yl]-2-furanyl]- (9CI) (CA INDEX NAME)

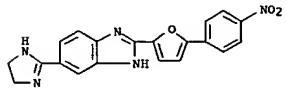
L14 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)



RN 442842-41-3 HCAPLUS
CN 1H-Benzimidazole, 5-(4,5-dihydro-1H-imidazol-2-yl)-2-[5-(4-nitrophenyl)-2-furanyl]- (9CI) (CA INDEX NAME)



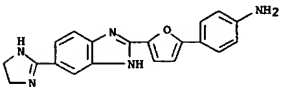
IT 442842-52-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(compds. for treatment of bovine viral diarrhea virus infection and hepatitis C virus infection)
RN 442842-52-6 HCAPLUS
CN 1H-Benzimidazole, 5-(4,5-dihydro-1H-imidazol-2-yl)-2-[5-(4-nitrophenyl)-2-furanyl]-, dihydrochloride (9CI) (CA INDEX NAME)



●2 HCl

IT 442842-53-7P
RL: SPN (Synthetic preparation); PREP (Preparation)
(compds. for treatment of bovine viral diarrhea virus infection and hepatitis C virus infection)
RN 442842-53-7 HCAPLUS
CN Benzenamine, 4-[5-[5-(4,5-dihydro-1H-imidazol-2-yl)-1H-benzimidazol-2-yl]-2-furanyl]-, trihydrochloride (9CI) (CA INDEX NAME)

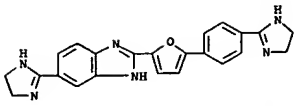
L14 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)



●3 HCl

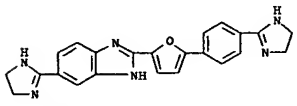
L14 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 05 Apr 2002
AB Fluorescence microscopy has been used to study the cellular distribution properties of a series of DNA binding cationic compds. related to the potent antiparasitic drug furamidine (DB75). The compds. tested bear a diphenylfuran or a phenylfuranbenzimidazole unfused aromatic core substituted with one or two amidine or imidazoline groups. The synthesis of five new compds. is reported. The B16 melanoma cell line was used to compare the capacities of mono-, bis-, and tetracations to enter the cell and nuclei. The high-resolution fluorescence pictures show that in the furamidine series, the compds. with two or four pos. charges selectively accumulate in the cell nuclei whereas, in most cases, those bearing only one pos. charge show reduced cell uptake capacities. One of the monocationic compds., DB607, distributes in the cytoplasm, possibly in mitochondria, with no distinct nuclear accumulation. In sharp contrast, furamidine and benzimidazole analogs, including the drug DB293 that forms DNA minor groove dimers, efficiently accumulate in the cell nuclei and the intranuclear distribution of these DNA minor groove binders is significantly different from that seen with the DNA intercalating drug propidium iodide. The results suggest that the presence of two amidine terminal groups plays a role in facilitating nuclear accumulation into cells, probably as a result of nucleic acid binding. The determination of DNA melting temperature increases on addition of these compds. supports the importance of DNA binding in nuclear uptake.
ACCESSION NUMBER: 2002:252822 HCAPLUS
DOCUMENT NUMBER: 137:197
TITLE: Distribution of Furamidine Analogues in Tumor Cells: Influence of the Number of Positive Charges
AUTHOR(S): Lansiaux, Amelie; Dassonneville, Laurent; Facompre, Michael; Kumar, Arvind; Stephens, Chad E.; Bajic, Miroslav; Tanious, Farial; Wilson, W. David; Boykin, David W.; Bailly, Christian
CORPORATE SOURCE: INSERM U-524 et Laboratoire de Pharmacologie Antitumorale du Centre Oscar Lambret, IRCL, Lille, 59045, Fr.
SOURCE: Journal of Medicinal Chemistry (2002), 45(10), 1994-2002
CODEN: JMCMAR; ISSN: 0022-2623
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 137:197
IT **216308-23-5**, DB 302
RL: PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(DB 302; synthesis and structure activity relationship of furamidine analogs in tumor cells and influence of number of pos. charges)
RN 216308-23-5 HCAPLUS
CN 1H-Benzimidazole, 5-(4,5-dihydro-1H-imidazol-2-yl)-2-[5-[4-(4,5-dihydro-1H-imidazol-2-yl)phenyl]-2-furanyl]- (9CI) (CA INDEX NAME)

L14 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)



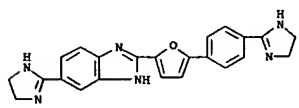
REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 24 May 2001
AB RNA viruses cause a wide range of human diseases. Development of new agents to target such viruses is an active area of research. Toward this goal, a series of diphenylfuran cations as potential inhibitors of the Rev-RRE complex have been designed and synthesized. Anal. of the interaction of the diphenylfurans with RRE and TAR RNA model systems by gel shift assays indicates that they exhibit both sequence and structure-dependent binding modes. Our results show a strong interaction between the diphenylfuran ring system and RRE bases, while the TAR interactions are much weaker with the compds. that are the best inhibitors of Rev-RRE. A diphenylfuran lead compound was systematically varied and the ability of the new compds. to inhibit the formation of Rev-RRE and Tat-TAR complexes was assayed by gel-mobility shift expts. In this series, DB340 was found to be the most active compound and also the most specific compound for inhibition of Rev-RRE complex formation.
ACCESSION NUMBER: 2001:373395 HCAPLUS
DOCUMENT NUMBER: 135:251448
TITLE: Inhibition of the HIV-1 Rev-RRE complex formation by unfused aromatic cations
AUTHOR(S): Xiao, G.; Kumar, A.; Li, K.; Rigl, C. T.; Bajic, M.; Davis, T. M.; Boykin, D. W.; Wilson, W. D.
CORPORATE SOURCE: Department of Chemistry, Georgia State University, Atlanta, GA, 30303, USA
SOURCE: Bioorganic & Medicinal Chemistry (2001), 9(5), 1097-1113
CODEN: BMECEP; ISSN: 0968-0896
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
IT **216308-23-5P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of and inhibition of the HIV-1 Rev-RRE complex formation by unfused aromatic cations)
RN 216308-23-5 HCAPLUS
CN 1H-Benzimidazole, 5-(4,5-dihydro-1H-imidazol-2-yl)-2-[5-[4-(4,5-dihydro-1H-imidazol-2-yl)phenyl]-2-furanyl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 05 Feb 2001
AB The Human Genome Project as well as sequencing of the genomes of other organisms offers a wealth of DNA targets for both therapeutic and diagnostic applications, and it is important to develop addnl. DNA binding motifs to fully exploit the potential of this new information. We have recently found that an aromatic dication, DB293, with an amidine-phenyl-furan-benzimidazole-amidine structure can recognize specific sequences of DNA by binding in the minor groove as a dimer. The dimer binding is strong, highly cooperative and, in contrast to many closely related heterocyclic dications, has both GC and AT base pairs in the minor groove binding site. The aromatic heterocycle stacked dimer is quite different in structure from the polyamide-lexitropsin type compds., and it is a dication while all lexitropsin dimers are monocations. The heterocyclic dimer represents only the second small mol. class that can recognize mixed sequences of DNA. To test the structural limits on the new type of complex, it is important to probe the influence of compound charge, chemical groups, and structural features. The effects of these compound mol. variations on DNA complex formation with several DNA sequences were evaluated by DNase I footprinting, CD and UV spectroscopy, thermal melting, and quant. anal. with surface plasmon resonance biosensor methods. Conversion of the amidines to guanidinium groups does permit the cooperative dimer to form but removal of one amidine or addition of an alkyl group to the amidine strongly inhibited dimer formation. Changing the Ph of DB293 to a benzimidazole or the benzimidazole to a Ph or benzofuran also inhibited dimer formation. The results show that formation of the minor groove stacked-dimer complex is very sensitive to compound structure. The discovery of the aromatic dimer mode offers new opportunities to enhance the specificity and expand the range of applications of the compds. that target DNA.
ACCESSION NUMBER: 2001:79423 HCAPLUS
DOCUMENT NUMBER: 134:277012
TITLE: Evaluation of the Influence of Compound Structure on Stacked-Dimer Formation in the DNA Minor Groove
AUTHOR(S): Wang, Lei; Carrasco, Carolina; Kumar, Arvind; Stephens, Chad E.; Bailly, Christian; Boykin, David W.; Wilson, W. David
CORPORATE SOURCE: Department of Chemistry, Georgia State University, Atlanta, GA, 30303, USA
SOURCE: Biochemistry (2001), 40(8), 2511-2521
CODEN: BICHAW; ISSN: 0006-2960
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 134:277012
IT **216308-23-5**, DB 302
RL: BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process)
(preparation and evaluation of the influence of heterocyclic dication compound structure on stacked-dimer formation in the DNA minor groove)
RN 216308-23-5 HCAPLUS
CN 1H-Benzimidazole, 5-(4,5-dihydro-1H-imidazol-2-yl)-2-[5-[4-(4,5-dihydro-1H-imidazol-2-yl)phenyl]-2-furanyl]- (9CI) (CA INDEX NAME)



L14 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)

Diseases and International Health, Duke University Medical Center, Durham, NC, 27710, USA

SOURCE: Antimicrobial Agents and Chemotherapy (1998), 42(10), 2503-2510
CODEN: AMACCQ; ISSN: 0066-4804

PUBLISHER: American Society for Microbiology

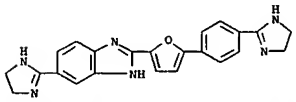
DOCUMENT TYPE: Journal

LANGUAGE: English

IT 216308-23-5
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(in vitro antifungal activities of a series of dication-substituted carbazoles, furans, and benzimidazoles)

RN 216308-23-5 HCAPLUS

CN 1H-Benzimidazole, 5-(4,5-dihydro-1H-imidazol-2-yl)-2-[5-[4-(4,5-dihydro-1H-imidazol-2-yl)phenyl]-2-furanyl]- (9CI) (CA INDEX NAME)

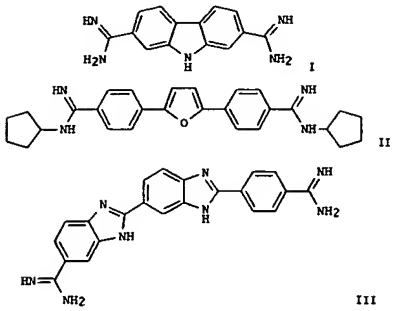


REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN

ED Entered STN: 21 Oct 1998

GI



I

II

III

AB Aromatic dicationic compds. possess antimicrobial activity against a wide range of eucaryotic pathogens, and in the present study an examination of the structures-functions of a series of compds. against fungi was performed. Sixty-seven dicationic mols. were screened for their inhibitory and fungicidal activities against Candida albicans and Cryptococcus neoformans. The MICs of a large number of compds. were comparable to those of the standard antifungal drugs amphotericin B and fluconazole. Unlike fluconazole, potent inhibitory compds. in this series were found to have excellent fungicidal activities. Broad-spectrum activities were observed for the carbazole I, the furan II, and the benzimidazole III. The MIC of III, one of the most potent compds., against C. albicans was 0.39 μg/mL, and it was the most potent compound against C. neoformans (MIC, ≤0.09 μg/mL). Selected compds. were also found to be active against Aspergillus fumigatus, Fusarium solani, Candida species other than C. albicans, and fluconazole-resistant strains of C. albicans and C. neoformans. Since of these compds. have been safely given to animals, these classes of mols. have the potential to be developed as antifungal agents.

ACCESSION NUMBER: 1998:664986 HCAPLUS

DOCUMENT NUMBER: 130:22621

TITLE: In vitro antifungal activities of a series of dication-substituted carbazoles, furans, and benzimidazoles

AUTHOR(S): Del Poeta, Maurizio; Schell, Wiley A.; Dykstra, Christine C.; Jones, Susan K.; Tidwell, Richard R.; Kumar, Arvind; Boykin, David W.; Perfect, John R.

CORPORATE SOURCE: Department of Medicine, Division of Infectious

Ngrazier 10796657AmendGroup1to4

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L15 1 L10

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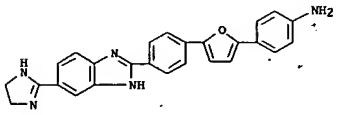
L15 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 06 Jul 2003
AB Bovine viral diarrhea virus (BVDV) is an economically significant pathogen of cattle and a problematic contaminant in the laboratory. BVDV is often used as an in vitro model for hepatitis C virus during drug discovery efforts. Aromatic dicationic mols. have exhibited inhibitory activity against several RNA viruses. Thus, the purpose of this research was to develop and apply a method for screening the aromatic cationic compds. for in vitro cytotoxicity and activity against a noncytopathic strain of BVDV. The screening method evaluated the concentration of BVDV in medium and cell lysates after 72 h of cell culture in the presence of either a 25 or 5 μM concentration of the test compound. Five of 93 screened compds. were selected for further determination of inhibitory (90 and 50%) and cytotoxic (50 and 10%) concentration endpoints. The screening method identified compds. that exhibited inhibition of BVDV at nanomolar concns. while exhibiting no cytotoxicity at 25 μM concns. The leading compds. require further investigation to determine their mechanism of action, in vivo activity, and specific activity against hepatitis C virus.

ACCESSION NUMBER: 2003:513253 HCAPLUS
DOCUMENT NUMBER: 139:390750
TITLE: Detection of inhibition of bovine viral diarrhea virus by aromatic cationic molecules
AUTHOR(S): Givens, M. Daniel; Dykstra, Christine C.; Brock, Kenny V.; Stringfellow, David A.; Kumar, Arvind; Stephens, Chad E.; Goker, Hakan; Boykin, David W.
CORPORATE SOURCE: Department of Pathobiology, College of Veterinary Medicine, Auburn University, Auburn, AL, 36849, USA
SOURCE: Antimicrobial Agents and Chemotherapy (2003), 47(7), 2223-2230.
CODEN: AMACCQ; ISSN: 0066-4804
PUBLISHER: American Society for Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 139:390750

IT 625459-52-1
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(inhibition of bovine viral diarrhea virus by aromatic cationic mols.)

RN 625459-52-1 HCAPLUS
CN Benzenamine, 4-[5-[4-[5-(4,5-dihydro-1H-imidazol-2-yl)-1H-benzimidazol-2-yl]phenyl]-2-furanyl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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FInv. Ent.
✓ Rumpf.

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L16         10 L13

=> d ed abs ibib hitstr 1-10
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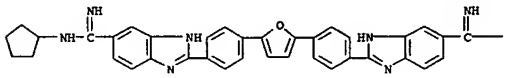
L16 ANSWER 1 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 11 Mar 2005
AB The invention provides formulations and structural modifications for phenothiazine compds. which result in altered biodistribution, thereby reducing the occurrence of adverse reactions associated with this class of drug.
ACCESSION NUMBER: 2005:216611 HCAPLUS
DOCUMENT NUMBER: 142:291340
TITLE: Formulations, conjugates, and combinations of drugs for the treatment of neoplasms
INVENTOR(S): Nichols, James M.; Foley, Michael A.; Keith, Curtis; Padval, Mahesh; Elliott, Peter
PATENT ASSIGNEE(S): Combinatorx, Incorporated, USA
SOURCE: PCT Int. Appl., 92 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005020913	A2	20050310	WO 2004-US27695	20040825
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2005080075	A1	20050414	US 2004-925835	20040825
PRIORITY APPLN. INFO.:			US 2003-497617P	P 20030825

OTHER SOURCE(S): MARPAT 142:291340
IT **216503-06-9 648415-36-5**
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(formulations and conjugates and combinations of drugs such as phenothiazines for treatment of neoplasms)
RN 216503-06-9 HCAPLUS
CN 1H-Benzimidazole-5-carboximidamide, 2,2'-(2,5-furandiyldi-4,1-phenylene)bis[N-cyclopentyl- (9CI) (CA INDEX NAME)

PAGE 1-A

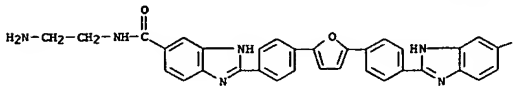


L16 ANSWER 1 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)

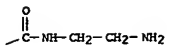
PAGE 1-B

RN 648415-36-5 HCAPLUS
CN 1H-Benzimidazole-5-carboxamide, 2,2'-(2,5-furandiyldi-4,1-phenylene)bis[N-(2-aminoethyl)- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

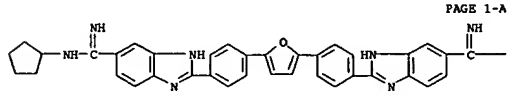


L16 ANSWER 2 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 11 Feb 2005
AB The invention features a method for treating a patient having a cancer or other neoplasm by administering to the patient pentamidine or a pentamidine analog and an antiproliferative agent simultaneously or within 14 days of each other in amts. sufficient to treat the patient. The combination of pentamidine and vinblastine provided improved antiproliferative activity against human non-small cell lung carcinoma A549 cells.
ACCESSION NUMBER: 2005:120654 HCAPLUS
DOCUMENT NUMBER: 142:191226
TITLE: Combination of pentamidine or analog and antiproliferative agent drugs for the treatment of neoplasms
INVENTOR(S): Nichols, James M.; Lee, Margaret S.; Keith, Curtis T.; Zhang, Yanzhen; Gaw, Debra A.
PATENT ASSIGNEE(S): Combinatorx, Incorporated, USA
SOURCE: PCT Int. Appl., 71 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005011572	A2	20050210	WO 2004-US23524	20040722
WO 2005011572	A3	20050310		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2005054708	A1	20050310	US 2004-895561	20040721
PRIORITY APPLN. INFO.:			US 2003-490759P	P 20030728

OTHER SOURCE(S): MARPAT 142:191226
IT **216503-06-9 648415-36-5**
RL: BSU (Biological study, unclassified); PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(combination of pentamidine or analog and antiproliferative agent drugs for treatment of neoplasms)
RN 216503-06-9 HCAPLUS
CN 1H-Benzimidazole-5-carboximidamide, 2,2'-(2,5-furandiyldi-4,1-phenylene)bis[N-cyclopentyl- (9CI) (CA INDEX NAME)

PAGE 1-A

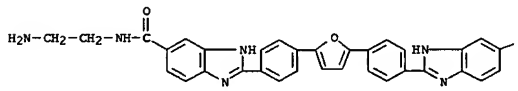


L16 ANSWER 2 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)

PAGE 1-B

RN 648415-36-5 HCAPLUS
CN 1H-Benzimidazole-5-carboxamide, 2,2'-(2,5-furandiyldi-4,1-phenylene)bis[N-(2-aminoethyl)- (9CI) (CA INDEX NAME)

PAGE 1-A



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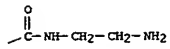


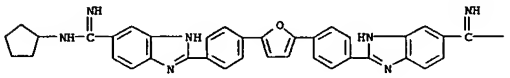
L16 ANSWER 3 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 26 Jan 2004
AB The invention features a method for treating a patient having a cancer or other neoplasm, by administering to the patient (i) a benzimidazole or a metabolite or analog thereof; and (ii) pentamidine or a metabolite or analog thereof simultaneously or within 14 days of each other in amts. sufficient to inhibit the growth of the neoplasm.
ACCESSION NUMBER: 2004:60255 HCAPLUS
DOCUMENT NUMBER: 140:105258
TITLE: Benzimidazole compound-pentamidine compound combinations for the treatment of neoplasms
INVENTOR(S): Borisy, Alexis; Keith, Curtis; Foley, Michael A.; Stockwell, Brent R.; Gaw, Debra A.
PATENT ASSIGNEE(S): Combinatorx, Incorporated, USA
SOURCE: PCT Int. Appl., 79 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004006849	A2	20040122	WO 2003-US21984	20030715
WO 2004006849	A3	20040603		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2002-396151P P 20020715
OTHER SOURCE(S): MARPAT 140:105258
IT **216503-06-9 648415-36-5**
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(benzimidazole compound-pentamidine compound combinations for the treatment of neoplasms)
RN 216503-06-9 HCAPLUS
CN 1H-Benzimidazole-5-carboximidamide, 2,2'-(2,5-furandiyldi-4,1-phenylene)bis[N-cyclopentyl- (9CI) (CA INDEX NAME)

PAGE 1-A

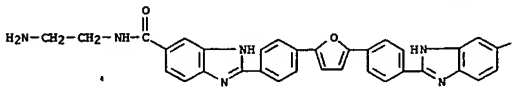


L16 ANSWER 3 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)

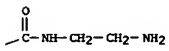
PAGE 1-B

RN 648415-36-5 HCAPLUS
CN 1H-Benzimidazole-5-carboxamide, 2,2'-(2,5-furandiyldi-4,1-phenylene)bis[N-(2-aminoethyl)- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



L16 ANSWER 4 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 26 Jan 2004
AB The invention features a method for treating a patient having a cancer or other neoplasm by administering to the patient pentamidine (or an analog thereof) and chlorpromazine (or an analog thereof) simultaneously or within 14 days of each other in amts. sufficient to treat the patient.
ACCESSION NUMBER: 2004:60249 HCAPLUS
DOCUMENT NUMBER: 140:122767
TITLE: Pentamidine compound-chlorpromazine compound combinations for the treatment of neoplasms
INVENTOR(S): Borisy, Alexis; Keith, Curtis; Foley, Michael A.; Stockwell, Brent R.; Gaw, Debra A.; Nichols, M. James; Lee, Margaret S.
PATENT ASSIGNEE(S): Combinatorx, Incorporated, USA
SOURCE: PCT Int. Appl., 76 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004006842	A2	20040122	WO 2003-US21803	20030711
WO 2004006842	A3	20040527		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

CA 2492059	AA	20040122	CA 2003-2492059	20030711
US 2004116407	A1	20040617	US 2003-617424	20030711
BR 2003012597	A	20050510	BR 2003-12597	20030711
EP 1545544	A2	20050629	EP 2003-764557	20030711

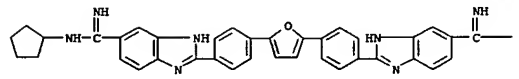
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

JP 2005536509	T2	20051202	JP 2004-521730	20030711
NO 2005000204	A	20050408	NO 2005-204	20050113

PRIORITY APPLN. INFO.: US 2002-395233P P 20020711
WO 2003-US21803 W 20030711
OTHER SOURCE(S): MARPAT 140:122767
IT **216503-06-9 648415-36-5**
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(pentamidine compound-chlorpromazine compound combinations for the treatment of neoplasms)
RN 216503-06-9 HCAPLUS
CN 1H-Benzimidazole-5-carboximidamide, 2,2'-(2,5-furandiyldi-4,1-phenylene)bis[N-cyclopentyl- (9CI) (CA INDEX NAME)

L16 ANSWER 4 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)

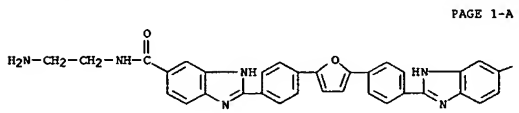
PAGE 1-A



PAGE 1-B

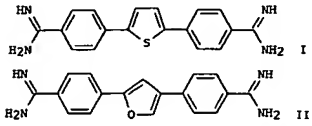
RN 648415-36-5 HCAPLUS
CN 1H-Benzimidazole-5-carboxamide, 2,2'-(2,5-furandiyldi-4,1-phenylene)bis[N-(2-aminoethyl)- (9CI) (CA INDEX NAME)

PAGE 1-A



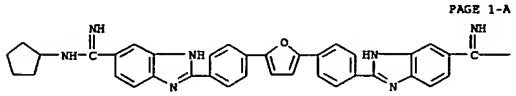
PAGE 1-B

L16 ANSWER 5 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 26 Feb 2002
GI

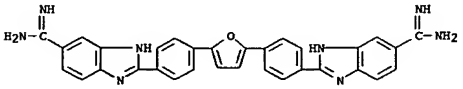


AB Aromatic dicationic mols. possess impressive activity against a broad spectrum of microbial pathogens, including Pneumocystis carinii, Cryptosporidium parvum, and Candida albicans. In this work, 58 aromatic cations were examined for inhibitory activity against axenic amastigote-like Leishmania donovani parasites. In general, the most potent of the compds. were substituted di-Ph furan and thiophene dications. 2,5-Bis-(4-amidinophenyl)thiophene (I) was the most active compound This agent displayed a 50% inhibitory concentration (IC50) of 0.42 ± 0.08 μM against L. donovani and an in vitro antileishmanial potency 6.2-fold greater than that of the clin. antileishmanial dication pentamidine and was 155-fold more toxic to the parasites than to a mouse macrophage cell line. 2,4-Bis-(4-amidinophenyl)furan (II) was twice as active as pentamidine (IC50, 1.30 ± 0.21 μM), while 2,5-bis-(4-amidinophenyl)furan and pentamidine were essentially equipotent in our in vitro antileishmanial assay. Carbazoles, dibenzofurans, dibenzothiophenes, and benzimidazoles containing amidine or substituted amidine groups were generally less active than the di-Ph furans and thiophenes. In all cases, aromatic dications possessing strong antileishmanial activity were several-fold more toxic to the parasites than to a cultured mouse macrophage cell line. These structure-activity relationships demonstrate the potent antileishmanial activity of several aromatic dications and provide valuable information for the future design and synthesis of more potent antiparasitic agents.

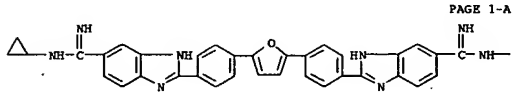
ACCESSION NUMBER: 2002:146280 HCAPLUS
DOCUMENT NUMBER: 136:321920
TITLE: Antileishmanial activities of several classes of aromatic dications
AUTHOR(S): Brendle, James J.; Outlaw, Abram; Kumar, Arvind; Boykin, David W.; Patrick, Donald A.; Tidwell, Richard R.; Werbovetz, Karl A.
CORPORATE SOURCE: Division of Experimental Therapeutics, Walter Reed Army Institute of Research, Silver Spring, MD, 20910, USA
SOURCE: Antimicrobial Agents and Chemotherapy (2002), 46(3), 797-807
CODEN: AMACCQ; ISSN: 0066-4804
PUBLISHER: American Society for Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English
IT 216503-06-9 415718-56-8 415718-58-0
RL: PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(antileishmanial activities of several classes of arom. dications)
RN 216503-06-9 HCAPLUS
CN 1H-Benzimidazole-5-carboximidamide, 2,2'-(2,5-furandiyldi-4,1-phenylene)bis[N-cyclopentyl- (9CI) (CA INDEX NAME)



RN 415718-56-8 HCAPLUS
CN 1H-Benzimidazole-5-carboximidamide, 2,2'-(2,5-furandiyldi-4,1-phenylene)bis- (9CI) (CA INDEX NAME)

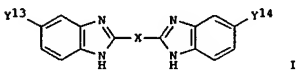


RN 415718-58-0 HCAPLUS
CN 1H-Benzimidazole-5-carboximidamide, 2,2'-(2,5-furandiyldi-4,1-phenylene)bis[N-cyclopropyl- (9CI) (CA INDEX NAME)



L16 ANSWER 5 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)
REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 6 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 24 Mar 2000
GI



AB Title compds., e.g., [I; X = (unsatd.) alkyl, (substituted) aryl; Y13, Y14 = (R41R42N)R40N:C; R40, R42 = H, alkyl, cycloalkyl, (substituted) aryl; R40R42 = alkyl, hydroxyalkyl, alkylene, (substituted) aryl; R41 = H, OH, alkyl, alkoxyalkyl, aminoalkyl, alkylamino, cycloalkyl, hydroxycycloalkyl, aryl, aralkyl, etc.], were prepared as antifungals (no data). Thus, furan-2,5-dicarboxaldehyde, 4-amidino-1,2-phenylenediamine hydrochloride, and 1,4-benzoquinone were refluxed 4 h to give 52% 2,5-bis[2-(5-amidino)benzimidazolyl]furan hydrochloride.

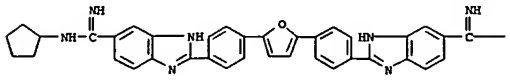
ACCESSION NUMBER: 2000:190915 HCAPLUS
DOCUMENT NUMBER: 132:237091
TITLE: Preparation of bis(amidinobenzimidazolyl)furans, -pyrroles, and related compounds as antifungals.
INVENTOR(S): Tidwell, Richard R.; Boykin, David W.; Perfect, John R.
PATENT ASSIGNEE(S): The University of North Carolina at Chapel Hill, USA; The Georgia State University Research Foundation, Inc.; Duke University
SOURCE: PCT Int. Appl., 67 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000015212	A2	20000323	WO 1999-US21383	19990915
W: AE, AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ, DE, DE, DK, DK, EE, EE, ES, FI, FI, GB, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
CA 2344445	AA	20000323	CA 1999-2344445	19990915
AU 9960450	A1	20000403	AU 1999-60450	19990915
AU 770656	B2	20040226		
EP 1143959	A2	20011017	EP 1999-969025	19990915
EP 1143959	A3	20020619		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 6326395	B1	20011204	US 1999-396836	19990915
JP 2002524503	T2	20020806	JP 2000-569796	19990915
PRIORITY APPLN. INFO.:			US 1998-100928P P	19980917
			WO 1999-US21383 W	19990915

OTHER SOURCE(S): MARPAT 132:237091
IT 214216-27-0P
RL: BAC (Biological activity or effector, except adverse); BSU (Biological

L16 ANSWER 6 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)
study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(prepn. of bis(amidinobenzimidazolyl)furans, -pyrroles, and related compds. as antifungals)
RN 214216-27-0 HCAPLUS
CN 1H-Benzimidazole-5-carboximidamide, 2,2'-(2,5-furandiyldi-4,1-phenylene)bis[N-cyclopentyl-, tetrahydrochloride (9CI) (CA INDEX NAME)

PAGE 1-A



●4 HCl

PAGE 1-B

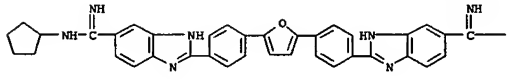
L16 ANSWER 7 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 21 Oct 1998
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Twenty analogs of pentamidine (including I), 7 primary metabolites of pentamidine, and 30 dicationic substituted bisbenzimidazoles were screened for their inhibitory and fungicidal activities against Candida albicans and Cryptococcus neoformans. A majority of the compds. had MICs at which 80% of the strains were inhibited (MIC80s) comparable to those of amphotericin B and fluconazole. Unlike fluconazole, many of these compds., such as II and III, were found to have potent fungicidal activity. The most potent compound against C. albicans had an MIC80 of ≤0.09 μg/mL, and the most potent compound against C. neoformans had an MIC80 of 0.19 μg/mL. Selected compds., such as IV, were also found to be active against Aspergillus fumigatus, Fusarium solani, Candida species other than C. albicans, and fluconazole-resistant strains of C. albicans and C. neoformans. It is clear from the data presented here that further studies on the structure-activity relationships, mechanisms of action and toxicities, and in vivo efficacies of these compds. are warranted to determine their clin. potential.
ACCESSION NUMBER: 1998:664985 HCAPLUS
DOCUMENT NUMBER: 130:22732
TITLE: Structure-in vitro activity relationships of pentamidine analogs and dication-substituted bis-benzimidazoles as new antifungal agents
AUTHOR(S): Del Poeta, Maurizio; Schell, Wiley A.; Dykstra, Christine C.; Jones, Susan; Tidwell, Richard R.; Czarny, Agnieszka; Bajic, Miroslav; Bajic, Marina; Kumar, Arvind; Boykin, David; Perfect, John R.
CORPORATE SOURCE: Department of Medicine, Division of Infectious Diseases and International Health, Duke University Medical Center, Durham, NC, 27710, USA
SOURCE: Antimicrobial Agents and Chemotherapy (1998), 42(10), 2495-2502
CODEN: AMACCQ; ISSN: 0066-4804
PUBLISHER: American Society for Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English
IT 216503-06-9P
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(structure-in vitro activity relationships of pentamidine analogs and dication-substituted bis-benzimidazoles as new antifungal agents)
RN 216503-06-9 HCAPLUS
CN 1H-Benzimidazole-5-carboximidamide, 2,2'-(2,5-furandiyldi-4,1-phenylene)bis[N-cyclopentyl- (9CI) (CA INDEX NAME)

L16 ANSWER 7 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)

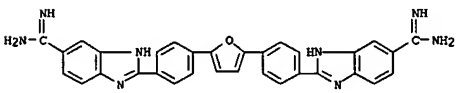
PAGE 1-A



PAGE 1-B

REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

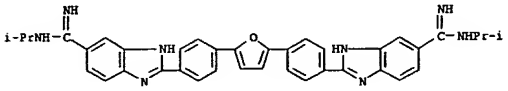
L16 ANSWER 8 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 16 Sep 1998
AB The syntheses of nine new derivs. of 2,5-bis[4-(N-alkylamidino)phenyl]furans with extended aromatic systems are reported. The interaction of these dicationic furans with poly(dA)*poly(dT) and with the duplex oligomers d(CGCGAATTCGCG)2 and d(GCGAATTCGC)2 was determined by Tm measurement, and the effectiveness of these compds. against the immunosuppressed rat model of Pneumocystis carinii was evaluated. At a screening dose of 10 μmol/kg, 4 of the 12 amidino furans described here are more active than the parent 2,5-Bis(4-aminidophenyl)furan. In general, extension of the aromatic system in the absence of a substitution of the amidino nitrogens resulted in higher affinity for DNA than the parent compound as judged by the larger ΔTm values and suggests enhanced van der Waals interactions in the amidino furan-DNA complex. One of the compds., 2,5-Bis[[4-(cyclopentyl)amidino]phenyl]furan (I) yielded cysts counts of less than 0.1% of control when administered at a dosage of 10 μmol/kg. I, which does not have an extended aromatic system, is the most active derivative Although a direct correlation between anti-P. carinii activity and DNA binding affinity was not observed, all compds. which have significant activity have large ΔTm values.
ACCESSION NUMBER: 1998:586991 HCAPLUS
DOCUMENT NUMBER: 129:290089
TITLE: Extended Aromatic Furan Amidino Derivatives as Anti-Pneumocystis carinii Agents
AUTHOR(S): Hopkins, Katherine T.; Wilson, W. David; Bender, Brendan C.; McCurdy, Donald R.; Hall, James Edwin; Tidwell, Richard R.; Kumar, Arvind; Bajic, Miro; Boykin, David W.
CORPORATE SOURCE: Department of Chemistry and Center for Biotechnology and Drug Design, Georgia State University, Atlanta, GA, 30303-3083, USA
SOURCE: Journal of Medicinal Chemistry (1998), 41(20), 3872-3878
CODEN: JMCMAR; ISSN: 0022-2623
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 129:290089
IT 214216-24-7P 214216-26-9P 214216-27-0P
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(preparation of bis[(alkylamidino)phenyl]furans for treatment of Pneumocystis carinii infections)
RN 214216-24-7 HCAPLUS
CN 1H-Benzimidazole-5-carboximidamide, 2,2'-(2,5-furandiyldi-4,1-phenylene)bis-, tetrahydrochloride (9CI) (CA INDEX NAME)



●4 HCl

RN 214216-26-9 HCAPLUS
CN 1H-Benzimidazole-5-carboximidamide, 2,2'-(2,5-furandiyldi-4,1-

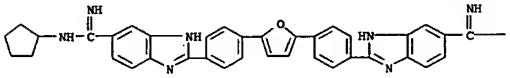
L16 ANSWER 8 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)
phenylene)bis[N-(1-methylethyl)-, tetrahydrochloride (9CI) (CA INDEX NAME)



●4 HCl

RN 214216-27-0 HCAPLUS
CN 1H-Benzimidazole-5-carboximidamide, 2,2'-(2,5-furandiyldi-4,1-phenylene)bis[N-cyclopentyl-, tetrahydrochloride (9CI) (CA INDEX NAME)

PAGE 1-A



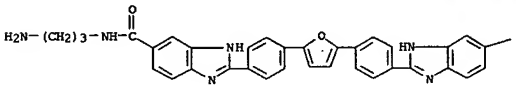
●4 HCl

PAGE 1-B

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 9 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 17 Jul 1997
AB The HIV-1 Rev protein regulates the nucleocytoplasmic distribution of viral precursor RNAs that encode HIV-1 structural proteins. Rev-mediated viral RNA expression requires a sequence-specific interaction between Rev and a viral RNA sequence, the Rev responsive element (RRE). Because the Rev-RRE interaction is essential for HIV-1 replication, anti-viral agents that selectively block this interaction may be effective anti-HIV-1 therapeutics. Here, we show that certain aromatic heterocyclic compds., in particular, a tetracationic diphenylfuran, AK.A, can block binding of Rev to its high-affinity viral RNA binding site. AK.A abolishes Rev-RRE interactions at concns. as low as 0.1 μM. Inhibition appears to be selective and results from competitive binding of the drug to a discrete region within the Rev binding site. Interestingly, the mol. basis for the AK.A-RNA interaction, as well as the mode of RNA binding differs from previously described aminoglycoside Rev inhibitors. Anal. of a variety of aromatic heterocyclic compds. and their derivs. reveals stereo-specific features required for the inhibition. Our results further demonstrate the feasibility of identifying and designing small mols. that selectively block viral RNA-protein interactions.
ACCESSION NUMBER: 1997:444918 HCAPLUS
DOCUMENT NUMBER: 127:185367
TITLE: Modulation of the Rev-RRE interaction by aromatic heterocyclic compounds
AUTHOR(S): Zapp, Maria L.; Young, Donna W.; Kumar, Arvind; Singh, Ravinder; Boykin, David W.; Wilson, W. David; Green, Michael R.
CORPORATE SOURCE: Department of Molecular Genetics and Microbiology and UMASS Cancer Center, University of Massachusetts Medical Center, Worcester, MA, 01605, USA
SOURCE: Bioorganic & Medicinal Chemistry (1997), 5(6), 1149-1155
CODEN: BMECEP; ISSN: 0968-0896
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
IT 194354-83-1
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(structure of aromatic heterocyclic compds. effect on modulation of Rev-RRE interaction in relation to HIV-1 replication)
RN 194354-83-1 HCAPLUS
CN 1H-Benzimidazole-5-carboxamide, 2,2'-(2,5-furandiyldi-4,1-phenylene)bis[N-(3-aminopropyl)-, tetrahydrochloride (9CI) (CA INDEX NAME)

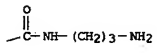
PAGE 1-A



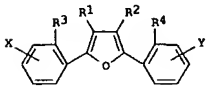
●4 HCl

L16 ANSWER 9 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)

PAGE 1-B



L16 ANSWER 10 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
ED Entered STN: 07 Aug 1996
GI



I

AB I [R1, R2 = H, lower alkyl, aryl, alkylaryl, aminoalkyl, aminoaryl, halo, oxyalkyl, oxyaryl, oxyacylalkyl; R3, R4 = H, lower alkyl, oxyalkyl, alkylaryl, aryl, oxyaryl, aminoalkyl, aminoaryl, halo; X and Y are located in the para or meta positions and are selected from H, lower alkyl, oxyalkyl; C(:NR5)NR5R6 (R5 = H, lower alkyl, alkoxyalkyl, hydroxyalkyl, aminoalkyl, alkylaminoalkyl, cycloalkyl, aryl, alkylaryl; R5R5 = C2-C10 alkyl, hydroxyalkyl, alkylene; R6 = H, hydroxy, lower alkyl, alkoxyalkyl, hydroxyalkyl, aminoalkyl, alkylamino, alkylaminoalkyl, cycloalkyl, hydroxycycloalkyl, alkoxycycloalkyl, aryl, alkylaryl)] were prepared as inhibiting agents for pneumocystis carinii pneumonia, giardia lamblia, and cryptosporidium parvum. E.g., 2,5-bis(p-bromophenyl)furan was treated with Cu(CN) in quinoline, and the mixture poured into dilute HCl solution A solution of the bisnitrile in dioxane/EtOH was saturated with dry HCl, and the resulting imidate ester hydrochloride treated with anhydrous NH3 in absolute EtOH to give 2,5-bis(4-amidinophenyl)furan dihydrochloride.
ACCESSION NUMBER: 1996:464510 HCAPLUS
DOCUMENT NUMBER: 125:114460
TITLE: Preparation of furan derivatives for inhibition of pneumocystis carinii pneumonia, giardia lamblia, and cryptosporidium parvum
INVENTOR(S): Boykin, David W.; Dykstra, Christine C.; Tidwell, Richard R.; Hall, James E.; Wilson, W. David; Kumar, Arvind; Blagburn, Byron L.
PATENT ASSIGNEE(S): Georgia State University Research Foundation, Inc., USA; University of North Carolina at Chapel Hill; Auburn University
SOURCE: PCT Int. Appl., 49 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 5
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9615126	A1	19960523	WO 1995-US14893	19951113
W: AL, AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ				
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
US 5602172	A	19970211	US 1995-453276	19950530
IL 115875	A1	20001206	IL 1995-115875	19951105
CA 2204898	AA	19960523	CA 1995-2204898	19951113
AU 9642838	A1	19960606	AU 1996-42838	19951113

L16 ANSWER 10 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN (Continued)

AU 692024	B2	19980528			
EP 792271	A1	19970903	EP 1995-941407		19951113
EP 792271	B1	20020227			
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE					
JP 10508857	T2	19980902	JP 1995-516327		19951113
AT 213737	E	20020315	AT 1995-941407		19951113
ES 2173988	T3	20021101	ES 1995-941407		19951113
ZA 9509661	A	19960529	ZA 1995-9661		19951114
PRIORITY APPLN. INFO.:			US 1994-339487	A1	19941114
			US 1994-238766	A2	19940506
			WO 1995-US14893	W	19951113

OTHER SOURCE(S): MARPAT 125:114460

IT 179118-07-1P

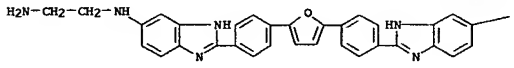
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)

(preparation of furan derivs. for inhibition of pneumocystis carinii pneumonia, giardia lamblia, and cryptosporidium parvum)

RN 179118-07-1 HCAPLUS

CN 1,2-Ethanediamine, N,N''-[2,5-furandiylbis(4,1-phenylene-1H-benzimidazole-2,5-diyl)]bis- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

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                                                      ENTRY    SESSION
FULL ESTIMATED COST                                  111.01     804.10

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)          SINCE FILE      TOTAL
                                                      ENTRY    SESSION
CA SUBSCRIBER PRICE                                  -13.87     -19.71

STN INTERNATIONAL LOGOFF AT 09:24:19 ON 13 DEC 2005
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